



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

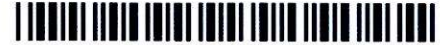
Tel (613) 632-5200
Fax 613 632-5246

U/R

S/M
14/08/13

6F9540V00131

Job Sheet 198822



Part No: 6F9540V00131

Job Qty: 1 pcs

Part Name: AW169 Upper Cutter Deflector Assembly



Part Weight: 0 lbs

Status: New

Job Created: 8/6/19

Job Tracking No:

Due Date: 8/12/19

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: URF18-746 DWG REV C IPP REV:A 13.11.13 NEW ISSUE DD VERF:JLM

Ship Via:

POSITIVE RECALL

EFFECTIVE 9/8/13 AUTH S/M

RELEASED **DD** DATE 19.11.19

Concession Required Priority: Medium

Concession #
40000037062

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup	Run	Workcenter / Supplier	Lead Time	
110	Packaging 1 - Pick Kit	1 pcs	8/12/19		0.00	0.00	Packaging 1 - 1		
							Packaging 1 - 2		
							Packaging 1 - 3		
							Packaging 1 - 4		
							Packaging 1 - 5		
							Packaging 1 - 6		
							Packaging 1 - 7		
							Packaging 1 - 8		
							Packaging 1 - 9		
							Packaging 1 - 10		
							Packaging 1 - 11		
							Packaging 1 - 12		
							Packaging 1 - 13		
							Packaging 1 - 14		
							Packaging 1 - 15		
							Packaging 1 - 16		
							Packaging 1 - 17		
							Packaging 1 - 18		
							Packaging 1 - 19		
							Packaging 1 - 20		
							Packaging 1 - 21		
							Packaging 1 - 22		
							Packaging 1 - 23		
							Packaging 1 - 24		
							Packaging 1 - 25		
							Packaging 1 - 26		
							Packaging 1 - 27		
							Packaging 1 - 28		
							Packaging 1 - 29		
							Packaging 1 - 30		
							Packaging 1 - 31		



Container No: S227607



Part: 6F9540V00131

Job No: 198822

Serial No/Batch: S227607

Revision:

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Date: 10/29/19

DAS
78
9-89

OCT 29 2019

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					Packaging 1 - 32	
					Packaging 1 - 33	
					Packaging 1 - 34	
					Packaging 1 - 35	
					Packaging 1 - 36	
111	Packaging 1-1 - Pick Kit - B4B	1 pcs	8/12/19	0.00 0.00	Packaging 1 - 1 - B4B	
					Packaging 1 - 2 - B4B	
					Packaging 1 - 3 - B4B	
					Packaging 1 - 4 - B4B	
					Packaging 1 - 5 - B4B	
					Packaging 1 - 6 - B4B	
					Packaging 1 - 7 - B4B	
					Packaging 1 - 8 - B4B	
					Packaging 1 - 9 - B4B	
					Packaging 1 - 10 - B4B	
					Packaging 1 - 11 - B4B	
					Packaging 1 - 12 - B4B	
					Packaging 1 - 13 - B4B	
					Packaging 1 - 14 - B4B	
					Packaging 1 - 15 - B4B	
					Packaging 1 - 16 - B4B	
					Packaging 1 - 17 - B4B	
					Packaging 1 - 18 - B4B	
					Packaging 1 - 19 - B4B	
					Packaging 1 - 20 - B4B	
					Packaging 1 - 21 - B4B	
					Packaging 1 - 22 - B4B	
					Packaging 1 - 23 - B4B	
					Packaging 1 - 24 - B4B	
					Packaging 1 - 25 - B4B	
					Packaging 1 - 26 - B4B	
					Packaging 1 - 27 - B4B	
					Packaging 1 - 28 - B4B	
					Packaging 1 - 29 - B4B	
					Packaging 1 - 30 - B4B	
					Packaging 1 - 31 - B4B	
					Packaging 1 - 32 - B4B	
					Packaging 1 - 33 - B4B	
					Packaging 1 - 34 - B4B	
					Packaging 1 - 35 - B4B	
					Packaging 1 - 36 - B4B	
120	QC 4	1 pcs	8/12/19	0.00 0.00	QC 4 - 28	
					QC 4 - 58	
					QC 4 - 69	
					QC 4 - 9	
					QC 4 - 46	
					QC 4 - 68	
					QC 4 - 72	
					QC 4 - 74	
					QC 4 - 75	
130	Packaging 3-1 - Stock - B4B	1 pcs	8/12/19	0.00 0.00	Packaging 3 - 1 - B4B	
					Packaging 3 - 2 - B4B	
					Packaging 3 - 3 - B4B	
					Packaging 3 - 4 - B4B	
					Packaging 3 - 5 - B4B	
					Packaging 3 - 6 - B4B	
					Packaging 3 - 7 - B4B	
					Packaging 3 - 8 - B4B	
					Packaging 3 - 9 - B4B	

					Packaging 3 - 10 - B4B			
					Packaging 3 - 11 - B4B			
					Packaging 3 - 12 - B4B			
					Packaging 3 - 13 - B4B			
					Packaging 3 - 14 - B4B			
					Packaging 3 - 15 - B4B			
					Packaging 3 - 16 - B4B			
					Packaging 3 - 17 - B4B			
					Packaging 3 - 18 - B4B			
					Packaging 3 - 19 - B4B			
					Packaging 3 - 20 - B4B			
					Packaging 3 - 21 - B4B			
					Packaging 3 - 22 - B4B			
					Packaging 3 - 23 - B4B			
					Packaging 3 - 24 - B4B			
					Packaging 3 - 25 - B4B			
					Packaging 3 - 26 - B4B			
					Packaging 3 - 27 - B4B			
					Packaging 3 - 28 - B4B			
					Packaging 3 - 29 - B4B			
					Packaging 3 - 30 - B4B			
					Packaging 3 - 31 - B4B			
					Packaging 3 - 32 - B4B			
					Packaging 3 - 33 - B4B			
					Packaging 3 - 34 - B4B			
					Packaging 3 - 35 - B4B			
					Packaging 3 - 36 - B4B			
135	DC - 1 - B4B	1 pcs	8/12/19	0.00 0.00	DC - 1 - B4B	NOV 04 2019		
					DC - 2 - B4B			
140	QC 21 - FG	1 pcs	8/12/19	0.00 0.00	QC 21 - FG - 21			
					QC 21 - FG - 70			
					QC 21 - SA - 53	NOV 04 2019		
Part Op 110 - (Pick Kit) Descriptions: 120 - (QC4- 100% Inspect kits for completeness) 130 - (Identify as per dwg & Stock Location: _____) Identify and pack for shipping as per PPP 6F9540V00131 135 - (Document Control) Photocopy bluefile per PPP D169-841-013 chg002 and create labels per 6F9540V00131 CHG002 140 - (QC21- Final Inspection - Work Order Release)								
Job BOM								
Part / Item	Component Name	Quantity	Operation	Container				
D169-841-013	AW169 Upper Cutter Deflector	1 pcs (1 ea)	110-Packaging 1 - Pick Kit	S226607				
Job Allocations								
Operation	Component Part	Required	Inventory	Allocated				
110-Packaging 1 - Pick Kit	D169-841-013	1	1	0				
Part Specifications								
Specifications could not be found.								

POSITIVE
RECALLSee
Manual
for
Concession

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Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
Date : _____	Sequence #: _____	QTY Affected : _____		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
				QC / QA Coordinator	
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: <u>198822</u> Part No. <u>6F9540V00R1</u>	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐
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Date : _____	Sequence #: _____	QTY Affected : _____	MRB (QSI042) DAS 51 19/08/13 9-89
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Description Work Order Deviation	Disposition	Completed By
Concession required before shipping for the following parts D4824-1 D4823-1 D4857-1 D4944-1 D4824-1	Acceptable to ship with approved Concession as per concession # 40000037062	Lead hand / Supervisor QC / QA Coordinator DAS 9 9-89 19.11.26

Root Cause	FAULT CATEGORY			
Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐	☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled	☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function	☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up	☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread
Other/Details: _____				

		Concessione Fornitore				PAGINA 1 di 2	STAB. EMITTENTE Vergiate	
NC Fornitore N.	AWC-029	Data	05.11.2019	Concessione	400000087062	Ordine	4801939434	
P/N	6F9540V00131			Grado/Categoria	NC	Rev. disegno		
Descrizione Parte	PROTECTR, CCP ASSY UPPER			Quantità Lotto	1,000	Q.tà sotto conc.	1,000	
Coordinatore NC	GIORGIO BENZONI			A/C Model	AW6			
Fornitore	DART AEROSPACE LTD			Contratto				
Difetto MA01 - Materiale diverso dal richiesto - * 05.11.2019 09:10:39 GIORGIO BENZONI (39851) * See supplier concession AWC-029 (attached) Causa del Difetto Ripetività (stesso P/N-Cod.Difetto) NO ☐ SI ☒ (10)								
Valutazioni e proposte dell'ENGINEERING								
Valutazioni dell'Engineering compresi input dell'Esperto:				Rapp. Indagine n.	Rapp. Rispondenza n.			
* 09.11.2019 21:33:30 MARCELLO STEFANELLI (9273) * Acceptable to use as is, as for evaluation in the annex document of the supplier								
Classificazione Deviazione dal Type Design secondo EASA part 21A.91: Minore/B								
Effetti del difetto					Limitazioni			
	Prima eventuale riparazione		Dopo eventuale riparazione		☐ Si (specificare) ☒ NO			
Sicurezza	☐ SI	☐ SI ☐ No						
Vita o durata	☐ SI	☐ SI ☐ No						
Resistenza	☐ SI	☐ SI ☐ No						
Prestazioni	☐ SI	☐ SI ☐ No						
Intercambiabilità	☐ SI	☐ SI ☐ No						
Affidabilità	☐ SI	☐ SI ☐ No						
Manutenibilità	☐ SI	☐ SI ☐ No						
Installabilità	☐ SI	☐ SI ☐ No						
Testabilità	☐ SI	☐ SI ☐ No						
Solo aspetto	☐ SI	☐ SI ☐ No						
Nessun effetto	☒ SI	☐ SI ☐ No						
Proposte di recupero:					Decisione di Impiego ☐ Usare riparato con riparazione specifica ☐ Usare riparato con riparazione nota ☒ Usare com'è ☐ Usare riparato per prove (vedi Limitaz.) ☐ Usare com'è per prove (vedi Limitazioni) ☐ Scartare			
Classificazione Concessione ☐ MAGGIORE ☒ MINORE					Ripresentare dopo riparazione ☐ SI ☒ NO			
Marcatura ☒ NO ☐ SI Metodo :								
ATE	MARCELLO STEFANELLI		CPE			Data	09.11.2019	
Verifiche e prove da effettuare								
Registraz. della riparazione Con Ordine (WO) di riparazione ☐ Numero:								
Valutazione Riparazione:								
Decisioni finali								
S/N	Usare com'è (UTI)	Usare riparato (RIL)	Scartare (SCA)	S/N	Usare com'è (UTI)	Usare riparato (RIL)	Scartare (SCA)	
S227607	☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	
Non Serializzati		Q.tà Usare com'è	1,000	Q.tà Usare riparato	Q.tà Scartare			
Funzione	ATE AW	CPE AW	Verifica della Riparazione	Qualità	Cliente	MOD/Rappresent. Istituzionale		
Firma	MARCELLO STEFANELLI			GIORGIO BENZONI				
Data	09.11.2019			11.11.2019				

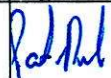
NC Fornitore N.	AWC-029	Data	05.11.2019	Concessione	400000087062	Ordine	4801939434
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CAUSE DEL DIFETTO

- * C8C5 Metodo e Processi

		CONCESSION				Pag. 1 of 3	
Manuf. Doc. N.	AWC-029	Date	Oct 30, 2019	AW Doc. N.	400000087062	Purchase Order	4801939434
AW P/N	6F9540V00131	S/N / Batch Number	S227607	Grade	A	AW Drawing Issue	B
Description	Protector, CCP Assembly Upper			Batch Q.ty	1	Defective Q.ty	1
Manufacturer	Dart Aerospace LTD			Model	AW169		
Defect(s) Description							
1. D4857-041 (x2) and D4944-1 (x4) , P/N 6F9540V00131, to be supplied without the 4x Ø5.33mm / Ø.210" holes drilled per drawing. The operation of drilling the 4x Ø5.33mm / Ø.210" holes to be performed by Leonardo operators on attached production permit. 2. The material of the D4823-1 Upper Cutter Deflector and D4824-1 Upper Cutter Mount was deviated from the approved Data. The parts were manufactured using aluminum plate per AMS-QQ-A-250/12 instead of aluminum bar. The substantiation for the deviation is provided in the attached engineering evaluation. 3. The grain direction on the D4823-1 Upper Cutter Deflector and D4824-1 Upper Cutter Mount, Deflector was deviated from the approved Data. The substantiation for the deviation is provided in the attached engineering evaluation.							
				Department	Inspector	Signature	Date
				Quality Assurance	DAS 9 9-89 DAS-9-9-89	P. Duval	Nov 13, 2019
Defect(s) Cause							
1. Due to issue regarding from QJ 200001282441 Dart Aerospace Drawing requirements and requirements specified in Leonardo's 3D model parts are to be supplied to Leonardo with out the Ø5.33mm / Ø.210" holes drilled per drawing D4857. Previous parts provided the hole pattern do not match the A/C structure. 2. To facilitate manufacture, Dart would like to modify the material on the approved drawing to manufacture the parts using aluminum plate per AMS-QQ-A-250/12. 3. To minimize material waste, Dart would like to modify the grain direction on the approved drawing.							
				Department	Inspector	Signature	Date
				Quality Assurance	DAS 9 9-89 DAS-9-9-89	P. Duval	Nov 13, 2019
Corrective Action				Complete Before			

Dart requests Leonardo Helicopters to accept the modified parts as described in this Concession. Dart is in the process of updating the drawings for approval by Leonardo Helicopters for future production.

Department	Inspector	Signature	Date
Quality Assurance	DAS 9 9-89 DAS-9-9-89	 P. Duval	Nov 13, 2019

For "MANUFACTURER" SUPPLIERS ONLY

ENGINEERING evaluation and proposal

Engineering evaluation

Investigation report
 Compliance report

n: NCR17-6591
 n...N/A.....

1-No design change. Removing the holes from the D4857-041 Deflectors and having them drilled during installation will prevent mismatched holes during installation.

2-In reference to Structural Substantiation Report DA169-4 page 48, the cable cutter system (CCS) was analysed using 7075-T6 aluminum sheet iaw AMS-QQ-A-250/12. Therefore manufacture of CCS parts using AMS-QQ-A-250/12 material has no effect on the structural substantiation.

3-Per DA169-4, the minimum margin of safety for the D4823-1 Upper Cutter Deflector and D4824-1 Upper Cutter Mount is 0.15 (page 66, 15 degree cutting strike on mount) which corresponds with a maximum stress of 61.9 ksi.

In reference to MMPDS-07 Tables 3.7.9.0 (b₂) & (b₃), the minimum yield strength of AMS-QQ-A-250/12 plate between 0.250"-2.000" thick in either the L or LT grain direction is 64 ksi (7075-T62 in longitudinal grain direction).

Repeating the margin of safety calculation in DA169-4 for 64 ksi material strength:

$$\begin{aligned}
 MS &= (\text{Yield Strength} / \text{Maximum Load}) - 1 \\
 &= (64 \text{ ksi} / 61.9 \text{ ksi}) - 1 \\
 &= 0.03
 \end{aligned}$$

The margin of safety is positive. Therefore the grain direction can be rotated in the L – LT plane with no effect on the strength substantiation of the D4823-1 or D4824-1 parts.

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Defect effects			Limitations
	Before any repair	After any repair	
	☐ yes	☐ yes ☐ no	☐ yes (specify) ☒ no
Safety	☐ yes	☐ yes ☐ no	
Life	☐ yes	☐ yes ☐ no	
Strength	☐ yes	☐ yes ☐ no	
Performances	☐ yes	☐ yes ☐ no	
Interchangeability	☐ yes	☐ yes ☐ no	
Reliability	☐ yes	☐ yes ☐ no	
Maintainability	☐ yes	☐ yes ☐ no	
Installability	☐ yes	☐ yes ☐ no	
Testability	☐ yes	☐ yes ☐ no	
Only aspect	☐ yes	☐ yes ☐ no	
Repair Proposal 			Decision to use ☐ Use repaired with specific repair ☐ Use repaired with known repair ☐ Use as is ☐ Use repaired for tests (see Limitations) ☐ Use as is for tests (see Limitations) ☐ Scrap
Concession Classification	☒ Major ☐ Minor	Submit after repair	☐ yes ☐ no